to those that are sufficiently humid to permit the development of luxuriant mesophytic forests. GROOM'S paper is most suggestive, and adds considerably to our knowledge concerning the difficult problem of coniferous xerophytism.—HENRY C. COWLES.

Nutrition of the embryo in Labiatae.—BILLINGS[9] has investigated the nutritive mechanism associated with the embryo sac of certain Labiatae, a subject that deserves more attention from morphologists. The ordinary sac which is oval or elliptical in longitudinal section, and which encroaches uniformly upon the surrounding tissues, has come to be regarded as the more or less fixed "type" of angiospermous sac. Among the Sympetalae especially, however, a much more complex nutritive mechanism has begun to be uncovered, including special digestive layers and special absorptive regions of the sac, the latter usually taking the expression of tubular haustorial extensions. BILLINGS investigated 15 species of Labiatae, representing 14 of the most representative genera. The results were uniform enough and differed enough from other sympetalous groups investigated to indicate that such structures may be of taxonomic and even of phylogenetic value. For example, the Scrophulariaceae previously described usually have a well developed digestive layer ("tapetum"), in addition to haustorial extensions of various kinds; but the Labiatae lack the special digestive layer. There are three features common to the species studied, and possibly to the whole family, to which the author calls attention: the micropylar haustorium (more or less extensively developed), the much-elongated suspensor, and the antipodal canal or process. *Salvia* is an exception to this statement, for it has a short suspensor and no micropylar haustorium; and the two species investigated "are unique in having two haustorial outgrowths, one coenocytic and one composed of ordinary endosperm tissue" (these haustoria are in addition to the well developed antipodal canal). The author thinks that such variations from the general conditions as are shown by *Salvia* "suggest a taxonomic rearrangement."—J. M. C.

Correlation in oats.—WALDRON[10] has compared the height of culm, length of head, number of grains per head, and average weight of grains in a variety of oats growing at Dickinson, North Dakota. The examination of 1000 plants discovered decided negative correlations (-0.595 ± 0.013, -0.511 ± 0.015, and -0.404 ± 0.017) between the weight of grains and number of grains per head, weight of grains and length of head, and between weight of grains and length of culm. He reaches the conclusion that in selecting the heaviest grains in this variety, the breeder selects plants somewhat below the

[9] BILLINGS, F. H., The nutrition of the embryo sac and embryo in certain Labiatae. Kansas Univ. Bull. 5:67–83. *pls. 11–14.* 1909.

[10] WALDRON, L. R., A suggestion regarding heavy and light seed-grain. Amer. Nat. 44:48–56. 1910.